

6.3.1.2 Concentration Based WLAs

Concentration based WLAs will be applied, as a WQBEL, to all existing and future permittees covered under all sectors of the MSGP, CGP, and MS4 permits. Both the AZPDES Industrial Stormwater Mining Multi-Sector General Permit (MSGP) and the AZPDES Industrial Stormwater Non-Mining MSGP address run-off from operations that may have the potential to negatively impact surface water quality. For the permittees listed in **Table 12** with an MSGP permit the WLA will be based upon the applicable aquatic and wildlife chronic copper standard and the total hardness value of the receiving water according to AAC R18-11 Appendix A, Table 11. As mentioned previously, **Table 12** does not list the AZPDES CGP permits associated with construction activity mainly due to the fact that these type of permits are normally short lived. This type of permit addresses storm water discharges from construction activities that have the potential of entering a surface water of the state. CGPs would also be required to meet concentration based WLAs for discharges that leave the site. As with MSGPs, the WLA will be also be based upon the applicable aquatic and wildlife chronic copper standard as dictated by the total hardness value of the receiving water.

The discussion of the existing conditions scenarios in Section 5.4 involved analysis of whether the acute and chronic criterion were being met at the pour point of the modeling basins during each of the storm types. This also required the application of the average total hardness for the sampling data collected from the basin. An analysis of the average total hardness of the sub-basins used in the modeling of the Queen Creek water quality data demonstrates that as you move from the headwaters of the drainage to its mouth, the hardness increases. This is typical in most drainages that originate in mountainous terrain and flow into alluvial fill valleys. The amount of alluvial material in the mid to lower reaches increases as the steepness of the channel decreases. As the channel becomes flatter, water velocity slows and the rate of deposition increases. The total hardness levels increase as the water moves through more porous substrate, accumulating greater amounts of dissolved solids. **Table 13** illustrates the average total hardness for each reach of Queen Creek. The numbers were derived by determining the average total hardness for each modeling basin that make up the reach, and then determining the average of the combined basins. The results show that the application of WQBELs will be stricter in the upper reach of Queen Creek (014A) where the total hardness values are approximately three times lower than the next downstream reach. This guarantees that daily loading requirements will not be exceeded in reaches 014B and 014C, where hardness values will be higher resulting in less strict WQBELs for permittees. Even though the total hardness in 014C is only slightly higher than 014B, the same situation is applicable, discharges by a permittee to 014B would still be stricter than if the discharge were to reach 014C.

Table 1: Average Total Hardness by Reach (Queen Creek)

	Reach 014A	Reach 014B	Reach 014C
Average Total Hardness; mg/L	77.4	251.2	281.5

Permittees must demonstrate compliance with the WLA as specified in their permits. If sample results exceed the WLA, permittees should evaluate the effectiveness of BMPs, modify or implement new BMPs, or provide additional measures to improve water quality.